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ABSTRACT

This report outlines the purpose, implementation, and results of a project designed to define the role of industrial arts in career education. Throughout the course of the project the major objectives were to develop a working definition of career education, identify the role of industrial arts in career education, foster implementation of methodology to fill this role, and establish working relationships with general education and vocational education. A workshop was held with participants in the project to aid in developing methods and procedures for implementation. (The appendixes, which take up three-fourths of the document, contain information on project participants, conference meetings, drawings of procedures employed, outline guides to the incorporation of industrial arts in career education at various levels, the role of any specialized field as a function of education, outline guides to the workshop procedure, occupational education focus by grade level, desirable performance specifications associated with objectives of career and occupational development, and a consultant's report on the project.) (KP)

ED 085496

EVALUATION REPORT

Project No. 002511

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A PROJECT DESIGNED TO DEFINE THE ROLE OF INDUSTRIAL ARTS IN CAREER EDUCATION FOR THE STATE OF OKLAHOMA

Harold J. Polk

Thomas Brown
Research Associate

May, 1973

CE 000 615

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Evaluation Report

Project No. 002511

"A Project Designed to Define the Role
of Industrial Arts in Career Education for
the State of Oklahoma

The project reported herein was performed pursuant to a contract with the Bureau of Education Personnel Development, Office of Education, under the Education Professions Development Act, and with the Oklahoma State Department of Vocational-Technical Education. Contractors undertaking such projects under government sponsorship are encouraged to express freely their professional judgement in the conduct of the project. Points of view or opinions stated do not, therefore, necessarily represent official Office of Education position or policy.

Harold J. Polk

May, 1973

TABLE OF CONTENTS

Page

Summary 1

Section I Introduction. 2

Section II Implementation. 6

Section III Phase I 8
Objectives,
Selection of Participants,
Planning & Report of Proceedings

Section IV Phase II. 15
Local Conferences

Section V Phase III 17
Workshop

Appendixes

A - Participants of Phase I. 19
Seminar April 21, 22, 1972

B - Local Conference Meetings. 20
Date, Location, and Number of Guests

C - Participants in "A Project Designed. 21
to Define the Role of Industrial Arts
in Career Education for the State of
Oklahoma"

D - Line Drawing of the Procedures Employed. 23
in "A Project Designed to Define the Role
of Industrial Arts in Career Education for
the State of Oklahoma"

E - Outline Guide to the Incorporation of. 24
Industrial Arts in Career Education
at the Elementary Level

F - Outline Guide to the Incorporation of. 31
Industrial Arts in Career Education for
the Early Secondary Level

Page

G - Outline Guide to the Incorporation of Industrial Arts in Career Education at the Late Secondary Level 39

H - Outline Guide to the Incorporation of Industrial Arts in Career Education at the Professional Development Level 43

I - Outline Guide to the Procedure Followed Throughout the Phase III Workshop 47

J - The Role of any Specialized Field as a Function of Education 48

K - Desirable Performance Associated with Objectives of Career and Occupational Development 49

L - Occupational Education Focus by Grade Level 63

M - Consultant's Report on "A Project Designed to Define the Role of Industrial Arts in Career Education for the State of Oklahoma" 64

SUMMARY

TITLE: A PROJECT DESIGNED TO DEFINE THE ROLE OF INDUSTRIAL ARTS IN CAREER EDUCATION FOR THE STATE OF OKLAHOMA

INVESTIGATOR: Dr. Harold J. Polk

CONTRACTING AGENCY: Oklahoma State University
Stillwater, Oklahoma

TIME PERIOD: One February, 1972 to Thirty-one May, 1973

PURPOSE: The purpose of the project was to define career education and identify the role of industrial arts. The project was expected to clarify the relationship of industrial arts with both general and vocational education. Throughout the course of the project the following objectives were sought:

1. To develop a working definition of career education
2. To identify the role of industrial arts in career education
3. To foster implementation of methodology to fill the role of industrial arts in career education
4. To establish a working relationship with general education
5. To establish a working relationship with vocational education

PROCEDURES: The participants from the field of education in the state of Oklahoma were invited to the campus of Oklahoma State University for a one week workshop. The result of this workshop was the development of methods and procedures for implementation of the concepts of career education in the field of industrial arts.

SECTION I

INTRODUCTION

"A Project Designed to Define the Role of Industrial Arts in Career Education for the State of Oklahoma"

The emphasis placed on career education by Commissioner Marland makes it imperative that each segment of education understand and fill its role.

The National Association of State Directors of Vocational Education has pledged vigorous support of career education as an emerging, essential concept that will provide a viable system of learning experiences which will assist all youth to acquire useful information about the occupational structure of the economy, the alternatives of career choice, the obligations of involvement in the total work force, the intelligent determination of personal capabilities and aspirations, the requisites for all occupations and opportunities to prepare for gainful and useful employment. (Position Paper on Career Education adopted at Las Vegas, Nevada, September 17, 1971)

The position paper further develops concepts and aims of career education as viewed by the NASDVE. These need not be reiterated in this instance. It is the purpose of this paper to show that the concepts and aims of career education fit within the philosophy of industrial arts programs now in existence. In fact, we believe that industrial arts in the public school is uniquely suited to developing career education in grades K-12. Industrial arts is organized, equipped, and philosophically oriented to do this job better than any other segment of our educational system.

Industrial arts is a study of industry and its technology. The instructional content deals with the origins and development of industry, and the tools,

materials, processes, products, energies, opportunities, organization, and problems involved in converting the earth's resources into material goods. Industrial arts has the distinction of being able to apply much of the knowledge gained in other general education courses to practical everyday aspects of living.

Industrial arts activities are appropriate at all levels of our public educational system, from K through 12. Subject areas and methodology vary at each of these levels.

The general goals of industrial arts are:

1. Develop an insight and understanding of industry and its place in our culture
2. Discover, and develop talents, aptitudes, interests, and potentialities of individuals for the technical pursuits and applied sciences
3. Develop an understanding of industrial processes and the practical application of scientific principles
4. Develop basic skills in the proper use of common industrial tools, machines, and processes
5. Develop problem-solving and creative abilities involving the materials, processes, and products of industry

These general goals of industrial arts are achieved by setting goals for each level of instruction and developing objectives for the various subject matter areas presented at the several levels.

The position paper states that career education is an integral part of the total public enterprise. It thus encompasses all aspects of the educational system of the several states. Industrial arts at the K-6 and 7-8 grade levels can become the catalyst to merge the various subject areas into a cohesive and extensive orientation and exploration of occupational opportunities.

The stated objectives of industrial arts at the elementary level are:

1. Support, enrich, and vitalize the academic curriculum and make general education more meaningful to students

2. Develop cooperative attitudes and self-reliance through problem-solving situations

3. Develop an understanding and appreciation for the dignity of honest work

4. Learn how to modify materials to meet students' needs by using basic tools and materials

Objectives at the junior high or middle school level are:

1. Provide all students with the opportunity to explore industry and the world of work

2. Provide opportunities for attaining knowledge of industrial vocational and related vocational pursuits and hobbies

3. Improve the competency level of the student with regard to choosing, buying, and using the goods and sources of industry

Admittedly, industrial arts is not, at the present time, wholly committed to the above goals and objectives. Presently most of the industrial arts programs are of the traditional wood, metals, and drafting variety. However, those school systems that have industrial arts of any kind, and there are approximately 2,158 classes in 16 different subject areas being offered in Oklahoma, could form a nucleus around which to build a strong career education program.

This is not to say that industrial arts can or should do the whole job of career education program. At the elementary and early levels all disciplines must be career oriented. That is, we can no longer afford the luxury of teaching subject matter areas as separate and unrelated. An interdisciplinary approach to teaching must be adopted. Teachers must start coordinating their efforts for the best benefit of th students instead of glorifying their own subject areas.

Career decisions are not made at a given time in life. They are the result of experiences and knowledge obtained over a span of years. It thus is incumbent on our educational system to provide every student with as many experiences and as much knowledge as possible about occupational opportunities whatever the vehicle used.

As stated, industrial arts, as presently presented in most of our schools is not doing a good job of career education. Some changes will be required. Leadership, time, and resources are the ingredients needed to retool our thinking and our methods to meet the challenge that has been given to us. With this challenge before us we must: (1) determine where we are; (2) determine where we need to go; and (3) determine how to get there.

SECTION II

IMPLEMENTATION

In March, 1971, at the National Association of Secondary School Principals in Houston, Texas, U. S. Commissioner of Education, Dr. Sidney P. Marland, Jr. introduced a new concept into the world of education - that of "Career Education." Through this concept every child now attending school would be prepared to enter the labor force prior to graduation from high school, or upon graduation have a higher job entry level. The child who shows desire for post high school training should be prepared academically to enter either a technical school or to enter a college or university.

Once the announcement placing the major thrust of the U. S. Office of Education into Career Education was made, the path was cleared for each state to study the effects of such action on its individual structure. Dr. Harold J. Polk, head of Industrial Arts Education, Oklahoma State University, proposed a project to define the role of industrial arts in career education for the state of Oklahoma. In order to define the role of industrial arts in career education, the following objectives were selected for the project:

1. To develop a working definition of career education.
2. To identify the role of industrial arts in career education.
3. To foster implementation of methodology to fill the role of industrial arts in career education.
4. To establish a working relationship with general education.

5. To establish a working relationship with vocational education

This project was to be subdivided into four separate phases:

Phase I	Planning
Phase II	Local Conferences
Phase III	Workshop
Phase IV	Follow-Up Study

SECTION III

PHASE I

OBJECTIVES, SELECTION OF PARTICIPANTS PLANNING AND REPORT OF PROCEEDINGS

The objectives as stated below served as a guide for the preparation and presentation of Phase I:

1. To familiarize the participants with the concepts of career education
2. To develop leaders for district meetings
3. To encourage enthusiasm for the concepts of career education

The selection of these individuals to serve as conference leaders was developed through a committee composed of Mr. Harold Winburn, State Supervisor of Industrial Arts in the State of Oklahoma, Mr. Terry Spradley, Assistant State Coordinator of E.P.D.A. programs, and Dr. Harold J. Polk.

The number of participants chosen was thirteen to represent the thirteen districts of the Oklahoma Education Association. One individual was chosen from each of these districts.[1] (A list of the conference leaders is shown in Appendix)

---

[1]The number chosen to attend the seminar as indicated in Phase I was thirteen; however, in two cases, two O.E.A. districts and conference leaders elected to consolidate personnel and conduct only one meeting. The number of local conference meetings would total eleven rather than thirteen.

The criterion by which these individuals were selected is shown below:

1. Those individuals who expressed an interest in the field of career education

2. Those individuals who were recognized as leaders in industrial education at the local, district, and state level by other industrial arts teachers within the state

In Phase I the twelve individuals were brought to the campus of Oklahoma State University for a two-day conference designed to familiarize them with industrial arts and its role in career education. The seminar was held on April 21 and 22, 1972, at which time a nationally known authority in this field, Dr. Rutherford E. Lockette, addressed the group and assisted in the process of familiarization of the concepts of career education as related to industrial arts education. Dr. Lockette was selected for this task due to his membership of the Task Force Working on The Aspects of Career Education with the U. S. Office of Education, and as a member of the Task Force for the Funding of Industrial Arts in the Vocational Programs.

The conference leaders were welcomed by Dr. Francis Tuttle, Director of Vocational and Technical Education in the state of Oklahoma, Mr. Harold Winburn, and Dr. Harold Polk.

Dr. Polk addressed the group in a presentation which described the project being conducted by Oklahoma State University to define the role of industrial arts in career education. This project, he stated, is in cooperation with the Bureau of Education Personnel Development, U. S. Office of Education under the Education's Development Acts and with the Oklahoma State Department of Vocational and Technical Education. In this presentation, he pointed out that the purpose of Phase I of the project was to help the thirteen conference leaders develop a presentation for local meetings.

Dr. Lockette's presentation consisted of the procedures through which industrial arts leaders are attempting to obtain federal funding for industrial arts programs under the vocational education acts. The findings of the Task Force for the Funding Industrial Arts in the Vocational programs will be published by Lawrence W. Prakken in the January issue of "School Shop." It is felt that career education will have a definite effect upon this funding. The funding of this area will have a direct relationship to a curriculum guide now being developed by the Industrial Arts Division of the American Vocational Association in cooperation with the American Industrial Arts Association. This guide is expected to be available by January of 1973.

Dr. Lockette defined career education as the entire preparation of man for his work. That preparation with which the public school must accept responsibility is between kindergarten program and the secondary school program. This responsibility can be tentatively divided into various groups as shown in Figure I. Rather than place the emphasis of the school by grade levels, we should attempt to give that individual material which will help him become successful. Through career education, the school should work with one accord, that is the various departments, ie. English, math, history, science, and industrial arts all clustered into a common purpose, that of education for the child, not instruction in separated and unrelated subject matter fields. This might, in effect, be referred to as "Comprehensive Education." It is through this type of education that the school can reach four distinct purposes of education.

1. Identification of the talent and learning style of the individual

2. The communication of physical and social knowledge about the world in which he lives

3. Development of the skills the student needs to sustain and advance his life so that he may be a productive and creative individual in society.

4. The imparting of success to the individual's search for his own life values.[2]

Education must be relevant to the occupation a person will follow if that program is to be defensible. If the material or subject matter taught does not prepare that student for life as a productive member of society, it is not only a waste of time, but a crime in the fact that it uses tax money that could help that child. Marland supported this statement when he said:

> . . . the primary reason for the failure of the schools to serve many young people adequately (as represented by dropouts and youngsters graduated from high school prepared neither for a job nor for further education and the extra social cost that go with that failure) can be traced to what we call general education. If we could replace that curriculum with the kind of creative and productive schooling that enables youngsters to carve out careers for themselves we would save a good deal of money that to all intents and purposes is now simply going down the drain.[3]

Upon the completion of the presentation by Dr. Lockette, the conference leaders were both familiar with the background of career education as well as enthusiastic about the future of this conception of education.

Once evidence of the potential possibilities of career education had been presented the participants were divided into four groups:

---

[2]Marvin J. Feldman, "Zeroing In on a Program of "'Zero Rejects'" "School Shop," Vol. XXIX, No. 8, April, 1970, p.87.

[3]United State Department of Health, Education, and Welfare Office of Education, "Marland of Career Education," Reprinted from American Education, DHEW Publication, No. (OE) 72-52, November, 1971.

Group I Professional Development

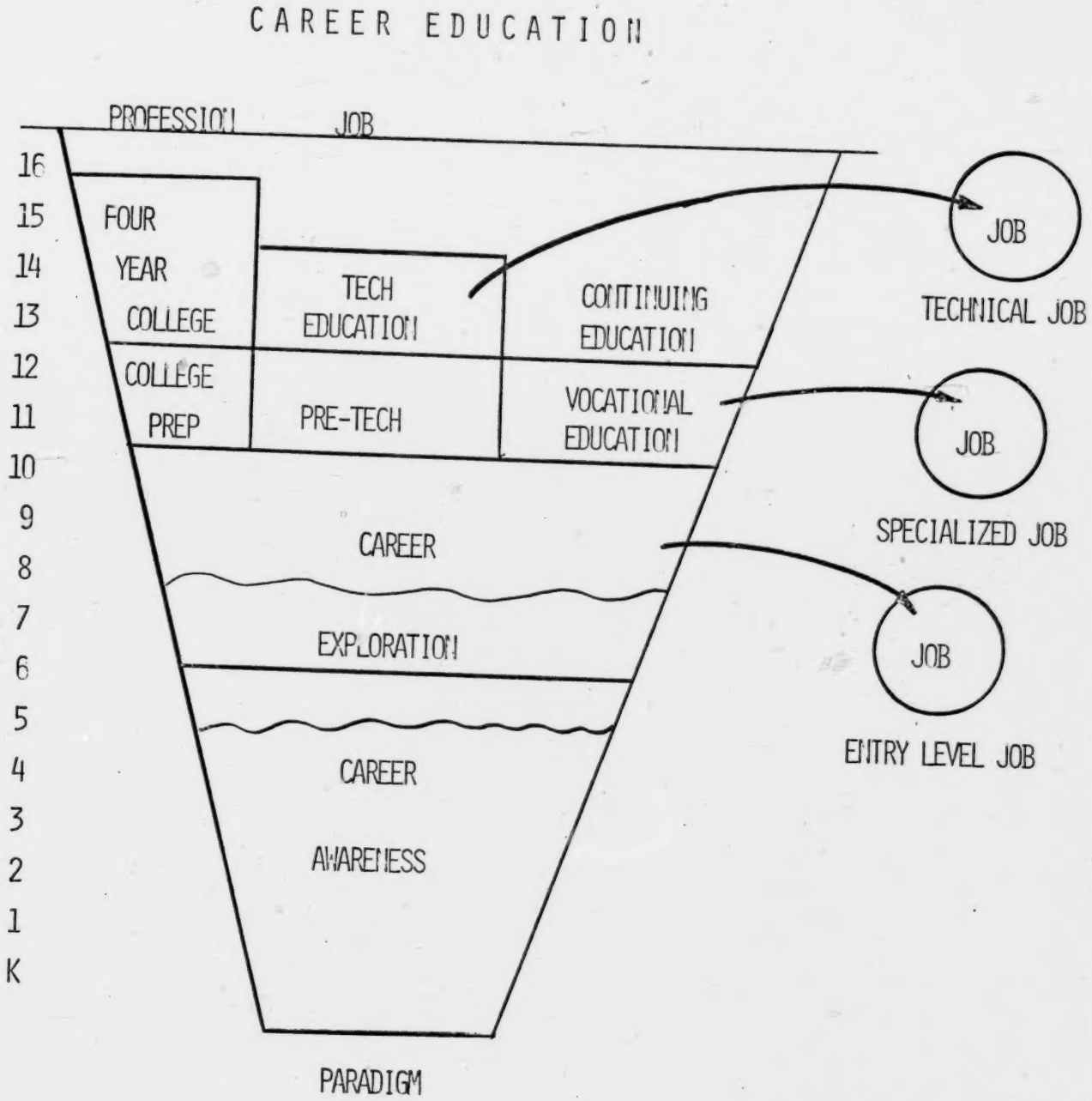
Group II Late Secondary

Group III Early Secondary

Group IV Elementary

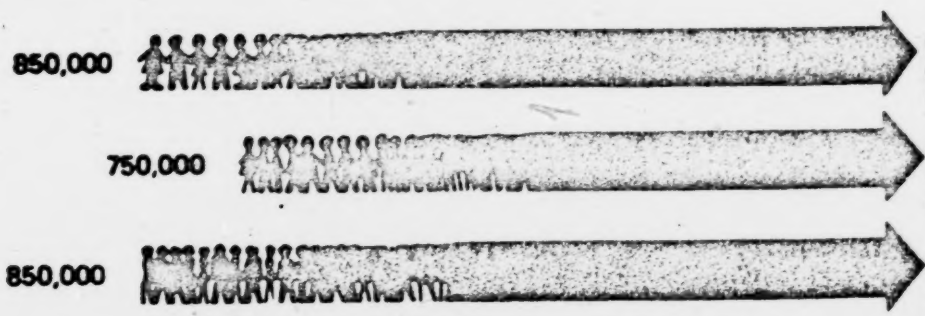
Each one of the four groups was led by a recognized state leader in industrial arts. (These people are listed in appendix) The purpose of the small group meetings was to develop plans for the local conference meeting to be held with the O.E.A. districts. Following the development of plans the participants again met in a large group at which time the plans were critiqued and revised.

FIGURE 1


CAREER EDUCATION
PROFESSIONAL JOB
16
15
14
13
12
11
10
9
8
7
6
5
4
3
2
1
K
FOUR YEAR COLLEGE
COLLEGE PREP
TECH EDUCATION
PRE-TECH
CONTINUING EDUCATION
VOCATIONAL EDUCATION
CAREER
EXPLORATION
CAREER
AWARENESS
PARADIGM
JOB
TECHNICAL JOB
JOB
SPECIALIZED JOB
JOB
ENTRY LEVEL JOB

THE PROBLEM

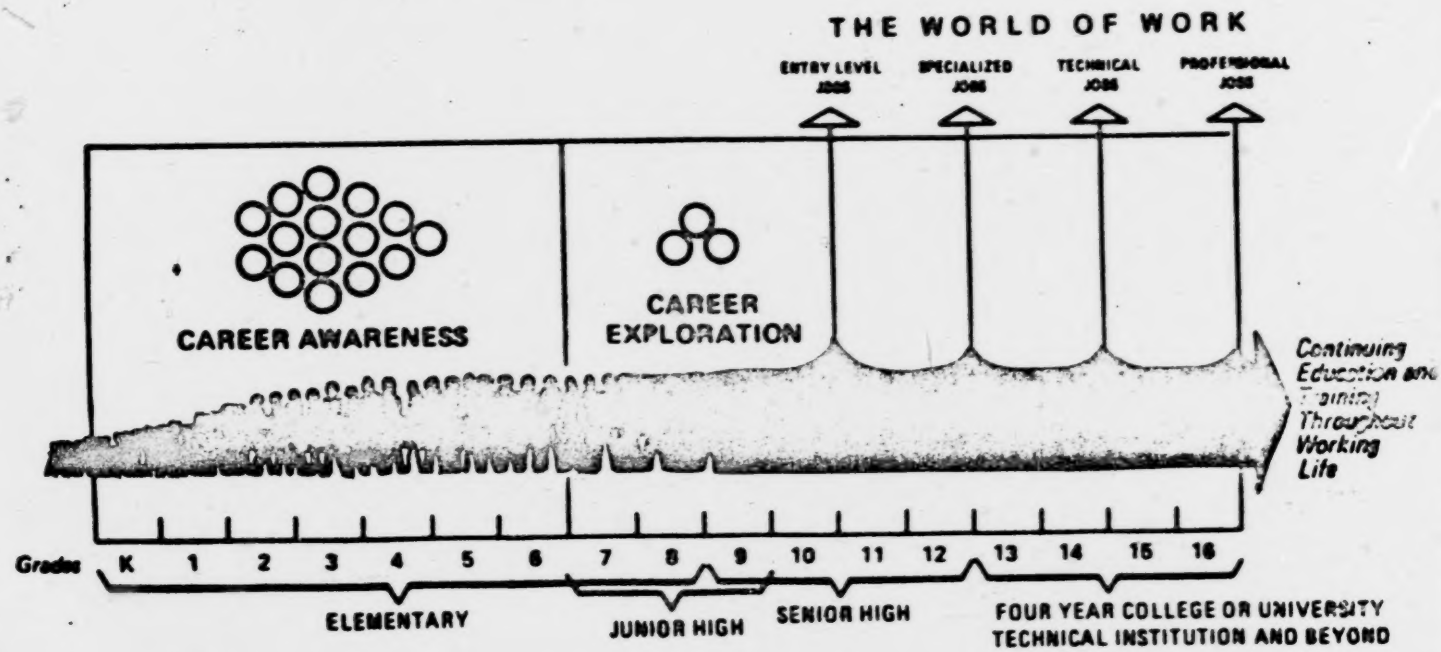
Nearly 2.5 million students leave the formal education system of the U.S. each year without adequate preparation for careers. In 1970-71, there were:


850,000
Elementary & secondary school dropouts; many found school irrelevant
750,000
General curriculum high school graduates who did not attend college
850,000
High school students who entered college in 1967, but did not complete the baccalaureate or an organized occupational program

TOTAL 2,450,000 (est.)

A SOLUTION...

CAREER EDUCATION


THE WORLD OF WORK
ENTRY LEVEL JOBS
SPECIALIZED JOBS
TECHNICAL JOBS
PROFESSIONAL JOBS
CAREER AWARENESS
CAREER EXPLORATION
Continuing Education and Training Throughout Working Life
Grades K 1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16
ELEMENTARY
JUNIOR HIGH
SENIOR HIGH
FOUR YEAR COLLEGE OR UNIVERSITY
TECHNICAL INSTITUTION AND BEYOND

SECTION IV

PHASE II

LOCAL CONFERENCES

The stated objectives for Phase III were as follows:

1. To familiarize as many people with the concepts of career education as possible
2. To develop materials to be used in Phase III
3. To select participants for Phase III

Those people who participated in Phase I, with the assistance of one of the four local consultants, conducted conferences in each of the thirteen O.E.A. districts. An invitation to attend the conference was sent to every secondary school administrator and industrial arts teacher in each of the districts. This list of individuals was obtained through the services of the State Office of Education in Oklahoma City, Oklahoma. Therefore, every secondary school principal and teacher employed in teaching industrial arts in the state of Oklahoma was informed of the location of the conference, the time of the meeting, the purpose of the meeting, and the name of the local conference leader who would address the group.

It was hoped that in the case of the local conference leader the teachers and administrators of that district would know the individual personally or by reputation and as a result would be more candid in their suggestions regarding the role of industrial arts in career education. In most cases the meeting was held in the evening and included a dinner meal provided by Oklahoma State University through the project. The local conference leaders were in agree-

ment that the film Career Education should be shown prior to discussion of the relationship of industrial arts implementation in the area of career education. Following a discussion in which every one present was encouraged to present his or her views regarding the area indicated, applications were collected from those people who expressed an interest in attending the workshop as designated in Phase III of the project. (A list of the conferences, location, and number of individuals present is shown in appendix)

Upon completion of the local conferences, the local consultants returned to the campus of Oklahoma State University to develop plans for Phase III of the project.

SECTION V

PHASE III

WORKSHOP

The objectives developed to direct the workshop are presented below:

1. To develop goals for four levels of industrial arts in career education
2. To formulate methods of attaining those goals
3. To develop a deeper interest in the concepts of career education
4. To promulgate the findings of the workshop

Participation in Phase III was limited to those individuals who had been in attendance at one of the local conference meetings held throughout the O.E.A. districts. The number of people chosen to participate in the workshop was thirty-six representing nineteen school districts within the state.

In addition to the participants, the group also included the three Oklahoma consultants; Mr. Raymond Gann, Northeastern State College; Dr. Loren Smith, Central State University; and Dr. Don Mitchell, Southwestern State College. Dr. Lockette, the national consultant; Mr. Harold Winburn, Supervisor of Industrial Arts in the State of Oklahoma; and Dr. Harold J. Polk, director of the project also were included.

On May 29, 1972, Dr. Lockette and Dr. Polk met throughout the day in an effort to finalize details of the project. As a result of this meeting, the following outline was agreed upon for the purpose of classification throughout the workshop.

I. The Role of Education in the United States

II. The Role of any Specialized Field as a Function of Education

III. The Role of Industrial Arts as a Special Field in American Public Education

A. Industrial arts in the elementary school

B. Industrial arts in the lower secondary school

C. Industrial arts in the upper secondary school

D. The professional development of industrial arts personnel

IV. Major Factors to be Considered in Curriculum Development in Industrial Arts

V. Major Factors to be Considered in Course Construction in Industrial Arts

VI. Major Factors to be Considered in the Selection and Utilization of Industrial Strategies in Industrial Arts

VII. Expanding the Involvement of Industrial Arts in Occupational Education

The evening of May 29, 1972, a general meeting was held which consisted of all participants, the state consultants, the national consultant, the state supervisor of industrial arts, and the director of the program. Following this informal meeting, in which introductions were made, the path was clear for the meeting May 30 to proceed with the project as outlined in the proposal. (A line drawing showing the process of evolvement for Phase III of the project is found in the appendix)

As a result of the leadership exhibited by Dr. Lockette and the state consultants, the participants constructed models which are suggested as guides for the injection of industrial arts into the concept of career education.

Appendix A

PARTICIPANTS OF PHASE I

SEMINAR APRIL 21, 22, 1972

Thomas Brown	Sapulpa, Oklahoma
Gene Carter	Tahlequah, Oklahoma
Carol Gaunt	Weatherford, Oklahoma
Walter Herrin	Duncan, Oklahoma
Malvin Koch	Marlow, Oklahoma
Glen Phillips	Guymon, Oklahoma
Joe Reid	Tishomingo, Oklahoma
Landis Trekell	Waynoka, Oklahoma
Richard Vrooman	Oklahoma City, Oklahoma
J. A. Walker	Ponca City, Oklahoma
J. D. Wilhoit	Miami, Oklahoma
George Wright	Tulsa, Oklahoma

Appendix B

LOCAL CONFERENCE MEETINGS
DATE, LOCATION, AND NUMBER OF GUESTS

April 25, 1972
Faculty Lounge of the Student Union
Central State University
Edmond, Oklahoma
27 guests

April 27, 1972
Borden's Cafeteria in Sheridan Village
Tulsa, Oklahoma
17 guests

April 27, 1972
Student Union
Northeastern A & M College
Miami, Oklahoma
30 guests

April 28, 1972
Lake Room of the VIP Club
Alva, Oklahoma
12 guests

May 1, 1972
O'Mealey's Cafeteria
Oklahoma City, Oklahoma
27 guests

May 2, 1972
Student Union
Murray State College
Tishomingo, Oklahoma
40 guests

May 2, 1972
College Union
Northeastern State College
Tahlequah, Oklahoma
9 guests

May 9, 1972
Ponca City East Jr. High School
Ponca City, Oklahoma
37 guests

May 9, 1972
Duncan Holiday Inn
Duncan, Oklahoma
24 guests

May 11, 1972
Kendall House
Weatherford, Oklahoma
56 guests

May 11, 1972
Guymon High School Cafeteria
Guymon, Oklahoma
20 guests

A total of 299 guests in attendance at the local conference meetings throughout the state.

Appendix C

PARTICIPANTS IN "A PROJECT DESIGNED TO DEFINE THE ROLE OF INDUSTRIAL ARTS IN CAREER EDUCATION FOR THE STATE OF OKLAHOMA"

Adams, A. R.
Weatherford, Oklahoma

Barrick, Charles
Ada, Oklahoma

Bearden, William V.
Okmulgee, Oklahoma

Bergen, Dr. Zane
Weatherford, Oklahoma

Briggs, James
Stillwater, Oklahoma

Bowman, Willie
Atoka, Oklahoma

Brown, Thomas W.
Stillwater, Oklahoma

Butler, Paul M.
Tahlequah, Oklahoma

Carter, Bobby D.
Ponca City, Oklahoma

Carter, Eugene
Tahlequah, Oklahoma

Cochran, Ronnie
Atoka, Oklahoma

Combs, Sylvester
Stillwater, Oklahoma

Cooper, James E.
Okmulgee, Oklahoma

Coulson, Francis
Wellston, Oklahoma

Gilbert, Keith
Tonkawa, Oklahoma

Herrin, Walter Jr.
Duncan, Oklahoma

Hight, Larry
Sapulpa, Oklahoma

Johnson, David
Duncan, Oklahoma

Kiehn, Bill
Marlow, Oklahoma

Koch, Malvin
Weatherford, Oklahoma

Leaghty, Roy
Stillwater, Oklahoma

Lee, A. L.
Weatherford, Oklahoma

Lee, Bryan
Guymon, Oklahoma

Lewis, Pat
Stillwater, Oklahoma

Lively, Ron E.
Duncan, Oklahoma

Lowe, Ruell
Purcell, Oklahoma

Lynn, David A.
Dewey, Oklahoma

Painter, Roger
Lindsay, Oklahoma

Raffety, Clyde
Stillwater, Oklahoma

Rice, Oscar
Oklahoma City, Oklahoma

Ross, Perry Don
Ada, Oklahoma

Rowe, Rex
Madill, Oklahoma

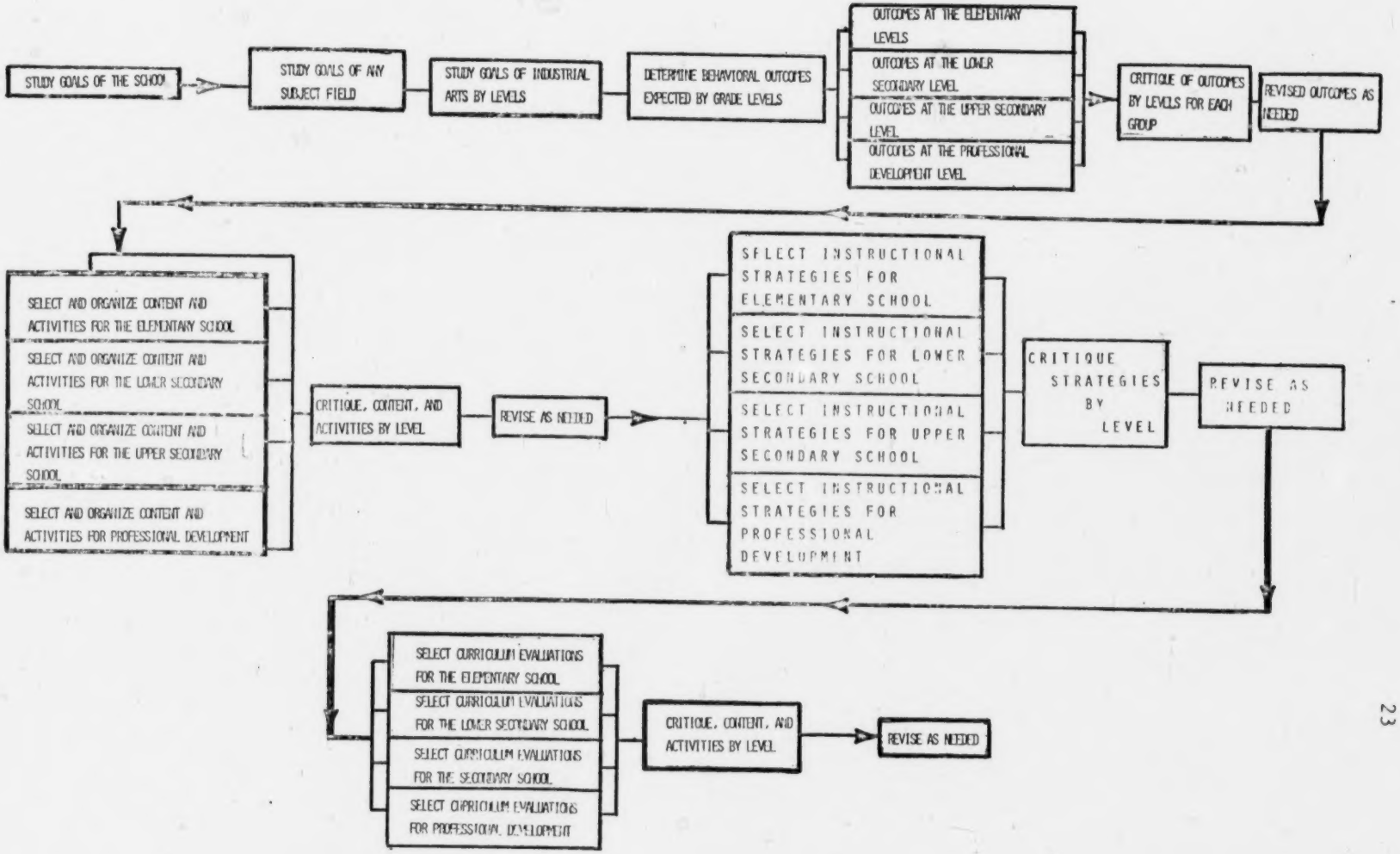
Walker, J. A.
Ponca City, Oklahoma

Wantiez, Gary
Duncan, Oklahoma

White, Jim B.
Tahlequah, Oklahoma

Willis, Don
Wellston, Oklahoma

LINE DRAWING OF THE PROCEDURES EMPLOYED IN "A PROJECT DESIGNED TO DEFINE THE ROLE OF INDUSTRIAL ARTS IN CAREER EDUCATION FOR THE STATE OF OKLAHOMA"


STUDY GOALS OF THE SCHOOL
STUDY GOALS OF ANY SUBJECT FIELD
STUDY GOALS OF INDUSTRIAL ARTS BY LEVELS
DETERMINE BEHAVIORAL OUTCOMES EXPECTED BY GRADE LEVELS
OUTCOMES AT THE ELEMENTARY LEVELS
OUTCOMES AT THE LOWER SECONDARY LEVEL
OUTCOMES AT THE UPPER SECONDARY LEVEL
OUTCOMES AT THE PROFESSIONAL DEVELOPMENT LEVEL
CRITIQUE OF OUTCOMES BY LEVELS FOR EACH GROUP
REVISED OUTCOMES AS NEEDED
SELECT AND ORGANIZE CONTENT AND ACTIVITIES FOR THE ELEMENTARY SCHOOL
SELECT AND ORGANIZE CONTENT AND ACTIVITIES FOR THE LOWER SECONDARY SCHOOL
SELECT AND ORGANIZE CONTENT AND ACTIVITIES FOR THE UPPER SECONDARY SCHOOL
SELECT AND ORGANIZE CONTENT AND ACTIVITIES FOR PROFESSIONAL DEVELOPMENT
CRITIQUE, CONTENT, AND ACTIVITIES BY LEVEL
REVISE AS NEEDED
SELECT INSTRUCTIONAL STRATEGIES FOR ELEMENTARY SCHOOL
SELECT INSTRUCTIONAL STRATEGIES FOR LOWER SECONDARY SCHOOL
SELECT INSTRUCTIONAL STRATEGIES FOR UPPER SECONDARY SCHOOL
SELECT INSTRUCTIONAL STRATEGIES FOR PROFESSIONAL DEVELOPMENT
CRITIQUE STRATEGIES BY LEVEL
REVISE AS NEEDED
SELECT CURRICULUM EVALUATIONS FOR THE ELEMENTARY SCHOOL
SELECT CURRICULUM EVALUATIONS FOR THE LOWER SECONDARY SCHOOL
SELECT CURRICULUM EVALUATIONS FOR THE SECONDARY SCHOOL
SELECT CURRICULUM EVALUATIONS FOR PROFESSIONAL DEVELOPMENT
CRITIQUE, CONTENT, AND ACTIVITIES BY LEVEL
REVISE AS NEEDED

Appendix E

OUTLINE GUIDE TO THE INCORPORATION OF INDUSTRIAL ARTS IN CAREER EDUCATION AT THE ELEMENTARY LEVEL

Elementary K-6

Career education by name and concept is appearing more and more in relation to the total educational program. Commissioner Marland, supported by a growing number in the profession, suggests that our present educational direction and instructional methods need adjusting. In initiating this adjustment, educators must be aware of the needs of the total population from the beginning elementary grades through and including adult education responsibilities. A review of present education goals and their continuing effect upon our rapidly changing society is definitely in order. Included in these activities is careful consideration toward the understanding and appreciation of the dignity of honest work.

At the elementary school level the responsibility for effective career education activities is the responsibility of each individual teacher.

The following information was prepared by a committee of educators assembled to examine the career education concept as it relates to elementary education and to formulate some guidelines for implementing coordinated career awareness activities in the elementary schools of Oklahoma.

I. To support, enrich, and vitalize the academic curriculum and make general educational experiences more meaningful to the students.

   A. To give students the most reliable information and the soundest knowledge possible.

   B. To prepare students for promoting wiser and more effective cooperation.

C. To inspire in students a desire to use their resources for the good of humanity.

D. To train students in the intellectual processes necessary to obtain the above objectives.

II. To develop an understanding and appreciation of the dignity of honest work.

A. The student should realize that people bring dignity and worth to their job.

B. The student should understand that work provides the opportunities for one to enrich his self-respect and well being.

III. The student manipulates tools and materials to construct projects and experiments which reinforce, enrich, motivate, and increase learning related to basic elementary subjects and personal needs.

A. To inspire in students the desire to construct models and instill pride in being a more productive person.

B. To prepare students through problem-solving as a means of dealing successfully with all obstacles to the attainment of all human goals, personal and social needs.

IV. The student describes in general terms the technical development of man and the role of business and industry in contemporary society.

A. Knowledge of how careers are classified in the home, school, and neighborhood.

B. Identify pictures of community helpers.

V. The student can identify and differentiate a wide variety of occupations.

A. Jobs exist for a purpose.

1. Developed from needs of society

2. Makes contributions for the advancement of society.

B. Begins to recognize the various ways of classifying careers as related to their production.

VI. The student demonstrates a positive attitude toward work as evidenced in good work habits, including pre-planning and organizing and activity, caring for equipment and materials, respecting and cooperating with associates, cleaning up, and completing problem-solving habits.

VII. The student identifies his interests, abilities, attitudes, and skills for better understanding of himself.

A. Each student as a productive member of society should learn the meaning of work.

B. Begin to develop an awareness that occupation requirements influence the content and direction of educational preparation.

VIII. Each student should be able to identify five occupations related to each of the eight disciplines taught in the elementary school.

IX. At the conclusion of a study of a given discipline, the student will have had some "hands on" experiences with ten or more career related activities.

X. Identify orally from pictures a specific number of occupations as related to the study of industry of the United States.

XI. The student will be exposed to four career clusters from pictures of men at work.

XII. The student uses correctly and safely basic hand tools as he constructs projects with a variety of appropriate materials.

XIII. The student demonstrates an awareness of some critical environmental elements which have an affect upon one's career development.

XIV. The student will begin to realize the environmental factors which affect one's career development.

XV. Each student will exhibit an awareness that entry into an occupation depends upon one's training/educational background.

A. Occupations and life styles are interrelated.

Constructional activities can stimulate the communicative arts and aid children in mastering this phase of the curriculum.

Students learn about the world around them through all forms of reading, writing, visual aids, and visits by community resource speakers. From the planning stages of the activity unit to the culminating phase, many effective

experiences are afforded the students as they discuss their work in both written and oral form.

Suggestions for implementing the learning activity:

1. During the routine instruction of elementary students, the teacher will include numerous role playing activities which will identify career activities.

2. The teacher should invite visitors from appropriate occupations to visit the classroom.

3. The teacher should organize supervised field visits to appropriate locations so that the youngsters may observe men and women in various occupations.

4. The teacher should utilize all available audio visual resources.

5. The teacher should work with teachers in other grade and subject areas to coordinate these activities so they display interchangeable relevance in each subject discipline.

Selected Material Resources

Organization

1. The teacher should work closely with an in-school advisory committee composed of an administrator, industrial arts instructor, counselor, vocational instructor, audio visual coordinator, and/or contributing individuals to the program.

2. The teacher should work with interested persons in the community.

3. The teacher should invite visitors from appropriate occupations to visit the classroom.

4. The teacher should include numerous role playing situations so the student may feel a part of society.

5. The teacher should organize supervised field visits to appropriate locations to observe occupational and industrial production activities.

A Sample Unit on Transportation for the Elementary School

I. Unit Objective

At the completion of this unit, the student will be able to form a meaningful relationship between the modes transportation and the careers involved by personal observation, "hands on" project experiences, role playing, and constructional activities.

II. Specific Objectives

A. The student will be able to identify the different modes of transportation by stating several examples of land, air, and sea transportation.

B. The student should be able to construct at least one simple model of a vehicle of transportation.

C. By showing constructed models, the student should explain the construction method, history, and practical use of the vehicle.

D. The student should be able to explain the advantages of modern transportation as compared to early means of transportation.

E. Through "role playing" the student should be able to give a verbal description of an occupation as related to a mode of transportation.

III. Unit Activities

A. Show a film, filmstrip, or other visual presentation on transportation.

B. Discuss the presentation and point out the different modes of transportation.

C. By this time students should be able to differentiate between land, sea, and air transportation.

D. Given a list of career titles, the student should be given an opportunity to match the career with specific modes of transportation.

E. Allow the student to construct a model of a vehicle of transportation. Provide as many materials and tools as possible, but allow the student to bring materials from home.

F. Encourage students to help each other in the construction and clean up activities. Safety practices in use of tools should be observed at all times.

G. Allow each pupil to "show and tell" about his model. Encourage him to explain to the class the history and practical use of his particular vehicle or mode of transportation.

H. Permit the student to assume some occupational role or that of some individual in history related to his constructed model. This is exampled by:

    1. Playing the role and dress the part of an airplane pilot (Neil Armstrong or Orville Wright)

    2. Play a charade game with the student acting out various roles.

I. The teacher should culminate the unit of study by taking a field trip, showing a film, or having an outside resource person speak to the class. This may be exampled by:

    1. Field trip to airport, bus station, auto factory, or train depot.

    2. Invite guest speakers such as truck driver, highway patrolman, pilot, or aircraft engineer.

Supplies and Equipment Needed for Unit On Transportation

Basic tools:

- Scissors
- Hammer
- Hand saw
- Sharp knife
- Wood file
- Sandpaper
- Screwdriver
- Pliers
- Tin snips
- Hand drill

Basic materials:

- Scrap boards
- Nails
- Glue
- Paper clips
- Tape
- Scrap cloth
- Modeling clay
- Screws
- Cardboard
- Paper
- Rubber bands
- Wire
- Paint
- String
- Empty cans

Material sources:

- Lumber yards
- Secondary Industrial Arts instructor
- Catalogs
- Carpenters
- Grocery stores (vegatable crates)
- Custodians

Suggested 16mm films:

"Transportation by Air" . . . . . 14 min.
"Transportation by Bus" . . . . . 10 min.
"Transportation by Freight Train" . . . . . 10 min.
"Transportation by Overland Waterways". . . 10 min.
"Transportation by Land". . . . . 12 min.
"Transportation by Water" . . . . . 14 min.
"Transportation by Helicopter". . . . . 11 min.
"Transportation Maintenance". . . . . 11 min.

These films may be obtained from Oklahoma State University Film Library, Stillwater, Oklahoma. 74074

Suggested Exercise:

Match by drawing a line from the title of the operator to the vehicle he operates.

Captain	Motorcycle	Wagon
Chauffeur	Automobile	Ship
Pilot	Train	Plane
Engineer	Bicycle	
Sailor	Boat	

Appendix F

OUTLINE GUIDE TO THE INCORPORATION OF
INDUSTRIAL ARTS IN CAREER EDUCATION FOR THE EARLY SECONDARY LEVEL

Junior High School

The U. S. Office of Education identified fifteen occupational clusters. Four of these clusters or categories are directly related to industrial arts. These are: manufacturing, transportation, construction and communication and media. Within these clusters are some 20,000 identifiable kinds of occupations. This is too much for any individual to comprehend; however, it is possible for the junior high student to become oriented to and explore some of these job families in the industrial arts program.

Hopefully, occupations will become more meaningful through the use of the following models. Stimulation of the student by the teacher using the residential construction model as a guide should motivate the student. The presentation should be in a manner that the student can see and get a feel for course work that is of personal value to him.

This model is by no means complete, but is intended as a guide to the teacher.

Subject - Construction

Grade Level - Junior High or Middle School

Unit Title - Residential Construction

I. Unit Objectives

To improve the competence level of students in regard to choosing, buying and using goods and services of industry.

A. The student can identify physical properties of common materials used in consumer products.

B. The student can identify construction techniques used in consumer products.

C. The student can identify economic and esthetic values of materials used in consumer products.

D. The student can identify finishes and finishing characteristics of materials used.

E. The student can identify processes which are necessary to determine available reliable services.

F. The student can identify economic worth of services.

II. Unit objectives as Related to Career Education

A. To help prepare the student to make a realistic occupational choice.

1. The student can relate his personal interests and their relevance to career areas.

a. The student can associate interests with occupations most closely related to them.

b. The student associates leisure time preferences with careers most related to them.

c. The student can compare his own interests with those of workers in different careers.

2. The student can relate his personal aspirations with careers which potentially fulfill him.

a. The student can associate goals and the specific careers most likely to satisfy him.

3. The student can identify occupational information sources and use them to extract pertinent information.

a. The student can identify major sources of career information.

b. The student can read and comprehend career information.

c. The student can learn about careers by observing work or interviewing workers and employers in specific careers.

4. The student can identify the knowledge, skills, and personal characteristics needed to conform to the qualifications of that career area.

    a. The student can differentiate careers according to the task performed.

    b. The student can differentiate careers according to related subject areas.

    c. The student can differentiate careers according to the length and type of training required.

    d. The student can identify personality characteristics desirable for career areas.

    e. The student can identify physical activities required for different career areas.

    f. The student can evaluate his own educational ability and rate of achievement with reference to career requirements.

5. The student can evaluate careers in regard to the possibility of change.

    a. The student can identify career areas for which knowledge and skills are likely to change within the span of a few years.

    b. The student can identify social and economic changes taking place in career areas.

6. The student can relate the knowledge of himself and the occupation in question in an attempt to identify a career choice.

    a. The student can rate himself in relation to the given career on the basis of:

        personal characteristics
        education
        physical characteristics
        training requirements
        job demand

b. The student can identify careers most compatible with himself.

c. The student can assess the potential satisfaction and dissatisfaction associated with that career

3. The student can accept the responsibilities and living conditions associated with that career area.

a. The student can accept the social status associated with that career.

b. The student can identify levels of responsibility and decision making required by that career.

D. The student will be able to plan for contingencies and career change.

1. The student can determine the effect of technological change on that career choice.

a. The student can assess the extent to which technological change modifies a given career by reducing or increasing employment opportunities or changing the knowledge and skills needed for the career.

b. The student can identify possible sources through which additional knowledge and skills may be obtained.

c. The student can plan for career alternatives by identifying other careers which require similar knowledge and skills in the event that a given career is radically changed or eliminated by technology.

2. The student can identify factors of a given career which indicate the duties are too easy or too difficult for given individual.

III. Modular Outline of Possible Areas of Instruction in Industrial Arts at the Lower Secondary School Level.

A. Transportation

B. Communication and Media

C. Manufacturing

D. Construction

1. Commercial

2. Residential

a. Labor relations

b. Planning

c. Plotting

d. Grading

e. Foundation

(1) Foundation stem wall

(a) Grading or preparation of the site

(b) Ditching

1) Power equipment

2) Types

3) Layout

(c) Reinforcement

1) Reasons

2) Grade levels

3) Materials

4) Methods

5) Inspection

(d) Pouring footing

1) Materials

2) Puddling

3) Grading

4) Curing

(e) Stem wall

1) Block

a) Mortar preparation

b) Brick ledge

c) Plumbing connection

d) Block laying

e) Venting

f) Insulation

2) Poured

a) Type of concrete

b) Forming

c) Grading

d) Sheathing ledge

e) Reinforcement

f) Pouring concrete

g) Puddling

h) Anchor bolts

(f) Termite control

(g) Safety procedures

f. Plumbing

g. Rough construction

h. Electrical

i. Heating and air conditioning

j. Finishing

k. Landscaping

IV. Unit Activities

A. Build a scale model of a house

B. Possible resource people

1. Equipment operators
2. Soil conservationist
3. Civil engineer
4. Inspectors
    a. City
    b. F.H.A.
    c. Safety
5. Brick layers
6. Pest controllers
7. Concrete finishers

C. Audio-Visual aids

D. Library materials

E. Textbooks

F. Demonstrations

G. Field trips

1. Lumber yards
2. Concrete plants
3. Construction sites

H. Lectures

I. Role playing

J. Information sheets

K. Laboratory activities

1. Concrete mixing
2. Ditch digging
3. Block laying
4. Building and setting forms
5. Placing reinforcement
6. Laying out activities

Appendix G

OUTLINE GUIDE TO THE INCORPORATION OF
INDUSTRIAL ARTS IN CAREER EDUCATION AT THE LATE SECONDARY LEVEL

Late Secondary Programs

After an extensive review of the various material concerning upper secondary industrial arts in career education, the objectives stated jointly by the American Industrial Arts Association and the industrial arts section of the American Vocational Association are adequate for implementing the role of career education in upper secondary industrial arts programs.

If industrial arts is to provide a program that challenges superior students, provides constructive experience for the average student, and encourages the slow and/or reluctant learner, we believe that the model program described in "A Guide to Improving Instruction in Industrial Arts" by the American Vocational Association concerning industrial arts' role in career education at the upper secondary level is a program that should be implemented or initiated within the school districts of Oklahoma. We realize this model program may have to be altered at some schools to be compatible with existing facilities. However, every effort should be made to see that the model program remains realistic in the view of the world of work and is meaningful and suitable to the needs, interest, and abilities of students.

I. Objectives of Career Education in Industrial Arts for Grade 10-12.

A. To provide adequately for basic instruction to meet the needs of at least three types of students.

1. Students who feel the need to explore more deeply the avocational, cultural understanding, and consumer aspects of American industry.

2. Students planning to pursue advanced study and careers in the areas such as the applied and technical sciences.

3. Students who will be entering the labor force prior to graduation or immediately after.

II. As a Result of Career Education the Student will be able to Identify and Compare as well as Understand those Factors which in their Combined Form make up his Culture.

A. The student will display new insights and understandings of his material culture, its tools and its technical equipment.

B. The student identifies and compares industrial-technical occupations, the organization of industry, technological changes, and methods of production.

C. The student understands and plans his economic future with consideration of the ever-changing industrial society.

III. To Provide Practical Situations Dealing with the Industrial World of Work and Provide Understanding of the Competitive Nature of Industry and Business.

A. The student applies, demonstrates, or exhibits scientific and mechanical principles through projects, experiments, or solutions of practical problems.

B. The student applies, demonstrates, or exhibits industrial processes and techniques through laboratory experiences and projects such as mass production, personnel organization, special fabricating processes, and industrial materials.

C. The student demonstrates orderly procedure for construction activities and problem solving experiences, including step-by-step analysis, organization of materials, appropriate time limits, and the self-evaluation of the task when completed.

IV. To Provide Basic Skills which are Useful in a Variety of Occupations or for Occupational Adjustment.

A. The student demonstrates correct, skillful, and safe use of power equipment and machines.

B. The student evaluates manufactured and constructed projects as judged by the quality of construction, appropriateness of materials, functionality of design, and utility of purpose.

Suggested Model Career Outline for Implementation at the Upper Secondary Level

I. Program Objectives

Students should be able to logically choose an occupation

II. Course Objectives

To enable a student to further explore a self-determined career

III. Subject

Graphic communications and illustration - 11th grade (Note: Students have had junior high industrial arts and vocational-technical training available)

IV. Related Career: Architecture

A. Job entry requirements and occupational information

1. Degree from accredited architectural college
2. Apprenticeship (2 yrs.)
3. Passing of AIA exam to become a residential architect
4. Salary
5. Working conditions

B. Residential

The student should be able to:

1. List advantages to selecting a building site
2. List five elements of good design
3. Identify styles of residential design
4. Identify four methods of construction
5. Identify five plates from a set of architectural drawings
6. Identify four styles of roof design

V. Preparation and Formulation of Material

- A. Audio-visual materials
- B. Resource people from industry
- C. Facilities
- D. Professional publications

VI. Presentation and Participation

- A. Lecture
  1. Explanation
  2. Question and answer
  3. Consult with student on an individual basis
- B. Audio-visual material and equipment
- C. Individual research on self-determined project
- D. Interaction among students

Appendix H

OUTLINE GUIDE TO THE INCORPORATION OF INDUSTRIAL ARTS IN CAREER EDUCATION AT THE PROFESSIONAL DEVELOPMENT LEVEL

I. Objectives for Career Education Training at the Professional Development Level

A person who has successfully completed a B.S. degree in education, who has majored in the industrial arts, who holds a standard teaching certificate for teaching in the middle and/or secondary schools in Oklahoma should be able to:

A. Write and/or express a philosophy of career education.

B. Write and/or express an understanding of how industrial arts and career education relate to the total process of education.

C. Write and/or express specific objectives of industrial arts in career education.

D. Show how the content of each occupational cluster in industrial arts contributes to the overall objective of career education.

E. Recognize, analyze, and interpret the career needs of the society.

F. Recognize, evaluate, and apply those resources available in the transmitting of career education.

G. Implement a career education program in the industrial arts.

II. Strategies for Implementation

A. Provide the teacher candidate with appropriate materials to give an insight for the philosophical needs of career education in all courses in the candidates program.

B. Provide materials to include history and development and movement by well-known writers in the field of career education and industrial arts.

C. Provide appropriate career education in all class lectures, presentations, and materials.

D. Provide the general goals of the total educational process and make available for study by the teacher candidate.

E. Provide general goals of career education for study and discussion.

F. Provide the teacher candidate with information concerning the construction of performance objectives.

G. Provide the teacher candidate with opportunity to express in his views concerning the role of occupational clusters in the industrial arts in career education.

H. Inform the student of the various agencies, institutional and governmental, that collect, process, and distribute career information.

I. Provide the student with examples of documental information from these various services.

J. Provide the student with methods of collecting career information at the local, state, regional, and national level.

K. Methods of identifying resource people.

L. Provide the teacher candidate with experience necessary for the display distribution, and proper utilization of course information.

M. Provide the teacher candidate with a problem that requires him to construct career education program models for curriculum which may be selected from one of these levels in the public school K-12.

III. Evaluative Measures

Provide an opportunity for evaluation of the teacher candidate in regard to career education. The teacher candidate should be able to:

A. Define the relationship between the general goals of career and industrial arts and general education.

B. Express a philosophy concerning industrial arts, career education, and general education, and how these views are evaluated with respect to accepted authority.

C. Express himself in the construction of a career education model and how this is evaluated with respect to accepted goals.

D. Establish procedures for follow-up study to be made of those teachers who have had the career education training for the purpose of evaluating the institution's career education program. Evaluative measures are recommended at the end of the second year of the candidate's teaching experience.

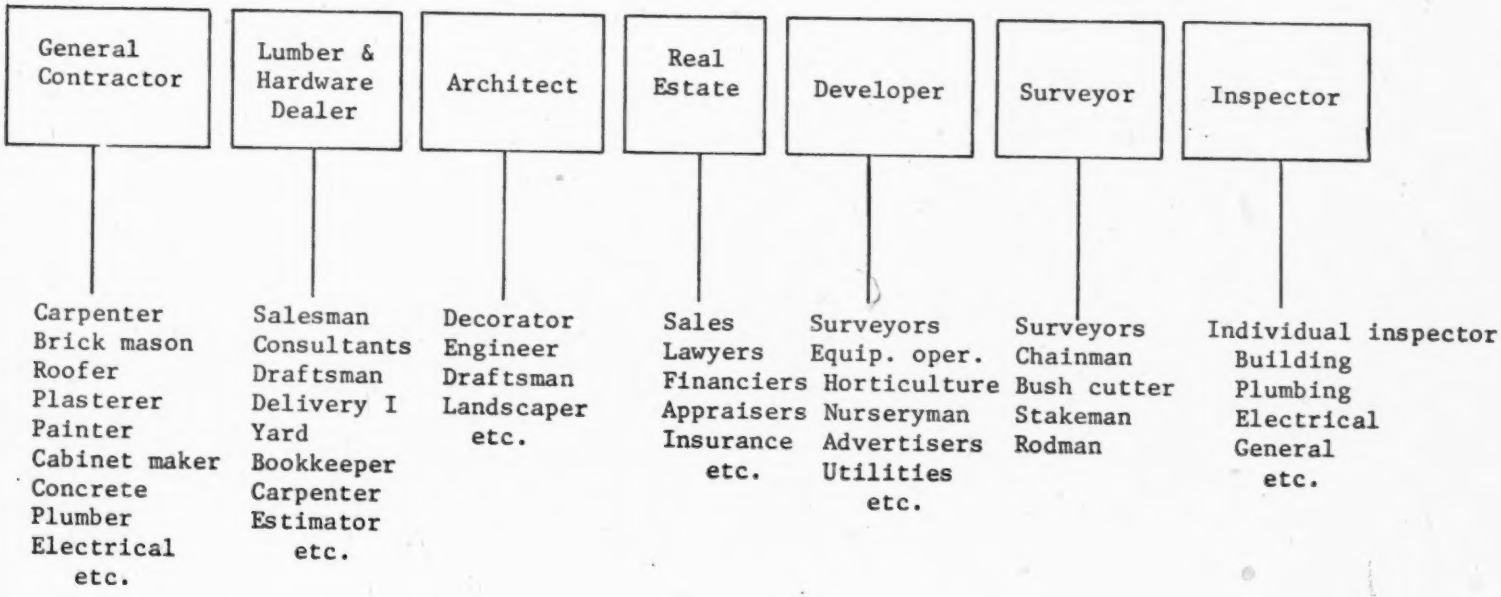
Evaluation

A percentage of the final grade for the course will be determined by the successful completion of the occupational study requirement.

WORLD OF CONSTRUCTION

I. A Basic Building Construction Course (College Level)

A. The following general and specific occupational categories should be integrated in the course content.



Appendix I

OUTLINE GUIDE TO THE PROCEDURE FOLLOWED THROUGHOUT THE PHASE III WORKSHOP

I. The Role of Education in the United States

II. The Role of any Special Field as a Function of Education

III. The Role of Industrial Arts as a Specialized Field in American Public Education

- A. Industrial Arts in the Elementary School
- B. Industrial Arts in the Lower Secondary School
- C. Industrial Arts in the Upper Secondary School
- D. The Professional Development of Industrial Arts Personnel

IV. Major Factors to be Considered in Curriculum Development in Industrial Arts

V. Major Factors to be Considered in Course Construction in Industrial Arts

VI. Major Factors to be Considered in the Selection and Utilization of Instructional Strategies in Industrial Arts

VII. Major Factors to be Considered in Curriculum Evaluation in Industrial Arts

VIII. Expanding the Involvement of Industrial Arts into Occupational Education

Appendix J

THE ROLE OF ANY SPECIALIZED
FIELD AS A FUNCTION OF EDUCATION

1. Specialized fields, such as English, history, industrial arts, plumbing, art, and all others, justify their inclusion in the curriculum to the extent that they contribute to the fulfillment of the general objectives of education in American democracy.

2. The greater the contribution made by a specialized field, the greater is its worth in the development of human resources.

3. All specialized fields should be required to show how the content and activities of each course contributes to the overall objectives of education in some balanced manner.

Appendix K

DESIRABLE PERFORMANCE ASSOCIATED WITH
OBJECTIVES OF CAREER AND OCCUPATIONAL DEVELOPMENT

I. Plan for and Make Career Decisions

A. Prepare for making a realistic career choice

1. Can relate personal interests and their relevance to occupational areas

a. Can associate interests with occupations most closely related to them

b. Can associate leisure time preferences with occupations most closely related to them

c. Can compare own interests with those of workers in different occupations

2. Can relate personal aspirations with occupations which potentially fulfill them

a. Can associate goals and the specific occupations most likely to satisfy them

b. Can evaluate potential occupational choices in terms of personal and family aspirations

3. Can evaluate own aptitudes and abilities

a. Can evaluate own educational achievement in relation to occupational areas

b. Can evaluate own potential for successful performance at 2-year and 4-year colleges

4. Can identify occupational information sources and use them to extract pertinent information

a. Can identify major sources of occupational information

b. Can read and comprehend occupational information

c. Can learn about occupations by observing work or interviewing workers and employers in specific occupations

5. Can identify the knowledge, skills, and personal characteristics needed for occupations

a. Can differentiate occupations according to tasks performed

b. Can differentiate occupations according to related subject areas

c. Can differentiate occupations according to length and type of training required

d. Can identify personality characteristics desirable for occupational areas

e. Can identify physical activities required for different occupational areas

f. Can evaluate own education and achievement with reference to occupational requirements

6. Can evaluate occupations for possibility of change

a. Can identify occupational areas for which knowledges and skills are likely to change in a few years.

b. Can identify social and economic changes taking place in occupational areas

7. Can relate knowledge of self and occupations in identifying a career choice

a. Can rate self in relation to given occupations on the basis of personal characteristics, education, physical characteristics, training requirements and job demands

b. Can identify occupations most compatible with self

B. Understand the consequence of career choice

1. Can accept duties and tasks required by an occupation

a. Can identify duties and tasks required by an occupation

b. Can evaluate own performance of duties and tasks based on ability, skills, and personal characteristics

2. Can weigh limitations against desirable attributes of occupational areas

    a. Can identify factors necessary for advancement in a given occupation

    b. Can identify factors which may result in a given occupation

    c. Can assess the contributions of various occupations to society

    d. Can evaluate own potential to perform in a given occupation adequately despite awareness of one or more dissatisfactions within the job

    e. Can assess the potential satisfactions and dissatisfactions associated with given occupations

3. Can accept responsibilities and living conditions associated with occupational areas

    a. Can accept the social statuses associated with an occupation

    b. Can identify demands on self and family, e.g. hours of work, required absences from home, required mobility, particular job hazards

    c. Can identify levels of responsibility and decision - making required by the occupation

    d. Can identify opportunities to readily gain employment in different geographical areas

C. Plan education and training leading to a career

1. Can plan education and training needed to qualify for given occupations

    a. Can identify and use sources of information pertinent to educational and/or training programs

    b. Can match occupational requirements with their appropriate educational and/or training program

    c. Can identify approximate length of time needed to prepare for a given occupation

    d. Can estimate cost of educational and/or training program for a given occupation

    e. Can identify alternative methods of preparing for a given occupation

f. Can identify clubs, activities or part-time jobs which can contribute to learning about a given occupation

2. Can project plans for financial support of educational and/or training programs

a. Can identify sources of information regarding scholarships and financial aid for education and/or training

b. Can identify requirements or restrictions involved th obtaining scholarships or financial aid for cation and/or training

c. Can identify part-time and/or cooperative school--business and industry employment opportunities

D. Plan for contingencies and occupational change

1. Can determine the effect of technological change on occupation

a. Can assess the extent to which technological change modifies a given occupation by reducing or increasing employment opportunities, or changing the knowledge and skills needed for the occupation

b. Can identify a possible source where additional knowledge and skills may be obtained

c. Can plan for occupational alternatives by identifying other occupations which require similar knowledge and skill in the event that a given occupation is radically changed or eliminated by technology

2. Can relate social and economic trends to occupational change

a. Can identify the social and economic trends which effect a given occupation

b. Can assess the future social and economic status of a given occupation

3. Can provide for educational or occupational failure

a. Can identify alternative occupations which satisfy own ability and interest level but require less educational achievement

b. Can identify alternative occupations which require the same training and experience but a lower level of abilility

4. Can evaluate pertinent information entering into a decision to change occupations

a. Can identify when occupational duties are too easy or too difficult for a given individual

b. Can identify sources of information relating to changing occupations

c. Can interpret economic data to predict industrial employment trends, expansion or decline of specific kinds of employment, wages, etc.

d. Can evaluate advantages and disadvantages of changing occupations and/or employers

e. Can evaluate own satisfaction or dissatisfaction with a given occupation

II. Develop Career and Occupational Capabilities

A. Select occupation and present self to prospective employer

1. Can assess abilities and occupational opportunities

a. Can identify present level of competency for a given occupation

b. Can identify appropriate sources of information regarding availability of employment or self-employment for a given occupation

c. Can evaluate factors such as starting salary, opportunity for advancement, fringe benefits, and provisions for continuing education

2. Can communicate relevant data to potential employers

a. Can identify information that should be included in a resume and/or application form

b. Can demonstrate knowledge of interview procedure

c. Can identify appropriate behavior and appearance for interview

B. Develop effective interpersonal relations and work habits

1. Can identify capabilities to interact with others

a. Can identify employee responsibilities to customers and clients for a given occupation

b. Can identify appropriate employer-employee and employee-employee behavior for a given occupation

c. Can demonstrate the ability to cooperate with fellow union members, trade association or professional association members

d. Can identify the responsibilities of a supervisor in a given occupation

2. Can identify effective work habits

a. Can identify and correct errors in own work and the work of others

b. Can schedule a day's work with responsibility so that time is used efficiently and work is finished on schedule

c. Can plan tasks so that both quantity and quality of work is done at high level

d. Can divide a job or project into logical components

e. Can make effective and timely decisions

f. Can identify the outcome of a decision in a given situation

C. Develop general knowledge and abilities

1. Can understand and demonstrate knowledge and abilities in visual communications

a. Can read working drawings and demonstrate knowledge and abilities in related areas of drafting and design

b. Can identify and demonstrate methods of reproducing printed and pictorial information

c. Can demonstrate a knowledge of structures in terms of points, lines, and planes

d. Can demonstrate an understanding of specialized areas of visual communication, such as photolithography, electronic drafting, and microfilm production

e. Can identify the interrelationship of the numerous occupations making up the visual communication family of occupations

f. Can identify the responsibilities of visual communication occupations to the operation of business and industry

2. Can understand and demonstrate knowledge and abilities in power sources and transmission

   a. Can understand basic mechanical principles, including simple machines, mechanical advantage, and friction loss

   b. Can demonstrate knowledge and ability in the use of hand tools and fasteners

   c. Can understand basic mechanical power transmission and control devices, including gears, pulleys, belts, couplings, and clutches

   d. Can understand basic fluid power transmission and control devices, including cylinders, motors, pumps, and valves

   e. Can understand basic sources of power, including generators, motors, solenoids, switches, and transformers

   f. Can understand basic sources of power, including fossil fuel engines, hydro-electric power, and nuclear power

   g. Can understand basic electronic control and communication devices, including vacuum tube and solid state applications.

   h. Can understand the interrelationship of power sources and power transmission as it serves business and industry

3. Can understand and demonstrate knowledge and abilities in materials and processes

   a. Can understand basic characteristics of matter including physical and chemical properties, states of matter, and chemical reactivity

   b. Can demonstrate an understanding of the properties and use in industry and society of common materials, such as, metals, woods, plastics, hydro-carbons, coating, adhesives, and textiles

c. Can demonstrate an understanding of basic industrial processes, including joining, forming, and shaping of industrial materials

d. Can identify the interrelationship between materials and processes in the formation of consumer and industrial products

D. Develop occupational skills in a selected group of occupations

1. Can understand and demonstrate knowledge and abilities in clerical/secretarial occupations

a. Can understand and demonstrate knowledge and ability in

(1) typing

(2) shorthand

(3) filing

(4) office practices

(5) use of dictating machines

(6) use of duplicating machines

b. Can demonstrate initial job entry abilities

2. Can understand and demonstrate knowledge and abilities in sales/merchandising occupations

a. Can understand and demonstrate knowledge and ability in

(1) retail sales

(2) demonstrations

(3) telephone sales

(4) catalog sales

(5) coding

(6) pricing

(7) preparing displays

b. Can demonstrate initial job entry abilities

3. Can understand and demonstrate knowledge and abilities in data processing occupations

   a. Can understand and demonstrate knowledge and ability in

      (1) key punch operation

      (2) automatic punch operation

      (3) interpreter operation

      (4) sorter operation

      (5) collator operation

      (6) tabulating machine operation

   b. Can demonstrate initial job entry abilities

4. Can understand and demonstrate knowledge and abilities in food service occupations

   a. Can understand and demonstrate knowledge and ability in

      (1) cooking

      (2) baking

      (3) diet planning

      (4) food packing

      (5) serving food

   b. Can demonstrate initial job entry abilities

5. Can understand and demonstrate knowledge and abilities in apparel making occupations

   a. Can understand and demonstrate knowledge and ability in

      (1) pinning

      (2) cutting

      (3) sewing

(4) assembling

(5) cleaning

(6) dyeing

b. Can demonstrate initial job entry abilities

6. Can understand and demonstrate knowledge and abilities in metal fabrication occupations

a. Can understand and demonstrate knowledge and ability in

(1) metal sawing

(2) shearing

(3) cutting

(4) forming

(5) joining

(6) casting

(7) layout and planning

(8) use of hand and machine tools

b. Can demonstrate initial entry abilities

7. Can understand and demonstrate knowledge and abilities in machine-tool occupations

a. Can understand and demonstrate knowledge and ability in

(1) drill press operation

(2) lathe operation

(3) grinder operation

(4) milling operation

(5) planer operation

(6) multi-purpose and automated machines

b. Can demonstrate initial job entry abilities

8. Can understand and demonstrate knowledge and abilities in wood and wood construction occupations

    a. Can understand and demonstrate knowledge and ability in

        (1) lumber handling and grading

        (2) use of hand and machine tools

        (3) layout and cutting

        (4) framing

        (5) finish carpentry

        (6) painting

    b. Can demonstrate initial job entry abilities

9. Can understand and demonstrate knowledge and abilities in electricity and electrical power occupations

    a. Can understand and demonstrate knowledge and ability in

        (1) meter reading and maintenance

        (2) motor diagnosis and repair

        (3) solenoid diagnosis and repair

        (4) single and multiple contact switches

        (5) electrical circuit diagnosis and repair

    b. Can demonstrate initial job entry abilities

10. Can understand and demonstrate knowledge and abilities in electronics and electronic service occupations

    a. Can understand and demonstrate knowledge and ability in

        (1) vacuum tube circuits

        (2) solid state circuits

        (3) use of test equipment

        (4) adio and television circuits

        (5) circuit diagnosis and repair

b. Can demonstrate initial job entry abilities

11. Can understand and demonstrate knowledge and abilities in industrial drafting occupations

a. Can understand and demonstrate knowledge and ability in

(1) reading working drawings

(2) layout of drafting problems

(3) detailing

(4) illustrating

(5) duplicating

b. Can demonstrate initial job entry abilities

12. Can understand and demonstrate knowledge and abilities in graphic production occupations

a. Can understand and demonstrate knowledge and ability in

(1) composing

(2) typesetting

(3) printing

(4) photography

(5) stripping and opaquing

(6) plate making

(7) offset press operation

(8) binding

13. Can understand and demonstrate knowledge and abilities in automotive occupations

a. Can understand and demonstrate knowledge and ability in

(1) pneumatic and hydraulic system analysis

(2) operation and repair of pumps and motors

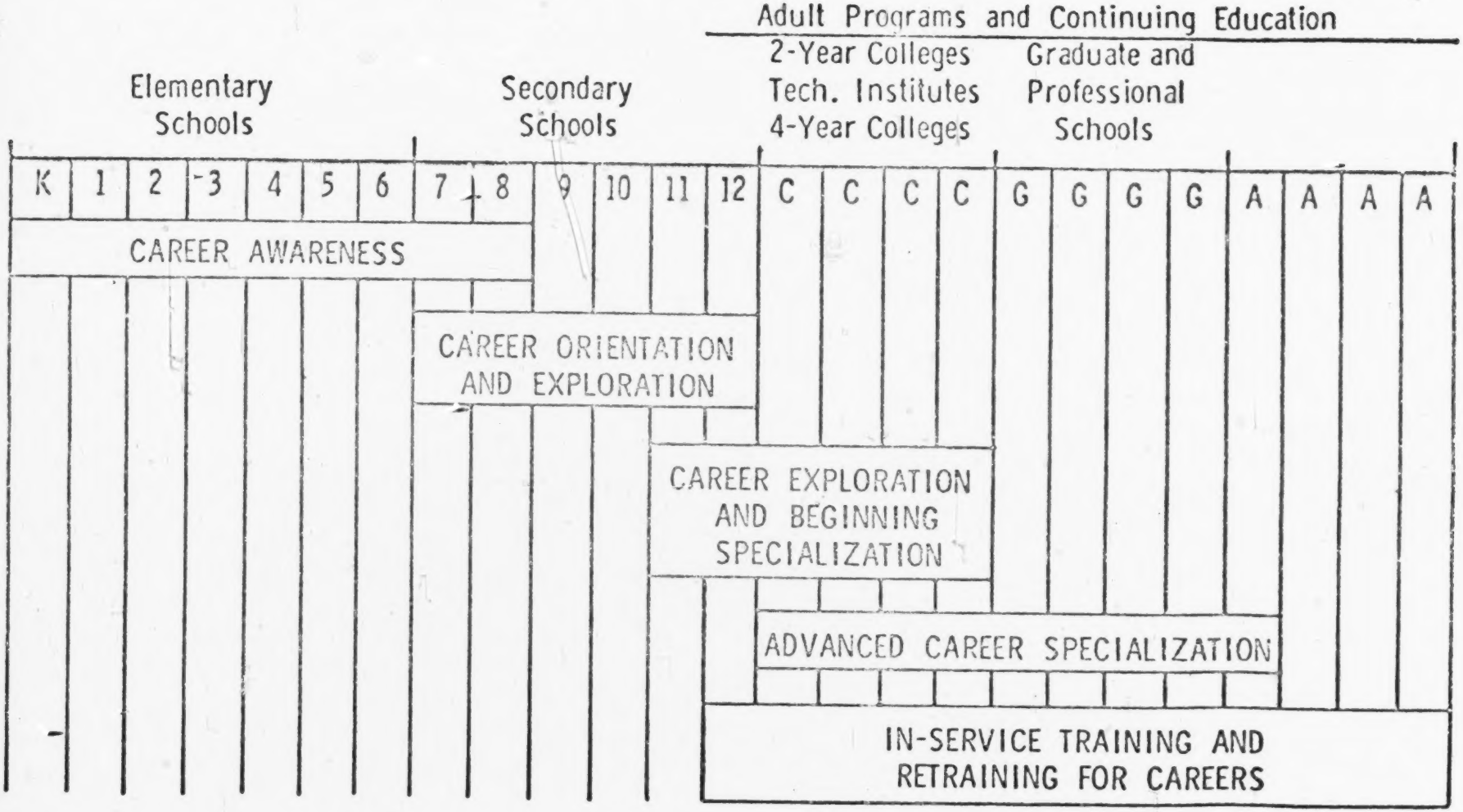
(3) operation and repair of valves

(4) operation and repair of cylinders

(5) controlling fluid circuit operation

b. Can demonstrate initial job entry abilities

THE CAREER EDUCATION CONCEPT


Adult Programs and Continuing Education
Elementary Schools
Secondary Schools
2-Year Colleges
Tech. Institutes
4-Year Colleges
Graduate and Professional Schools
K 1 2 3 4 5 6 7 8 9 10 11 12 C C C C G G G G A A A A
CAREER AWARENESS
CAREER ORIENTATION AND EXPLORATION
CAREER EXPLORATION AND BEGINNING SPECIALIZATION
ADVANCED CAREER SPECIALIZATION
IN-SERVICE TRAINING AND RETRAINING FOR CAREERS

Appendix L

OCCUPATIONAL EDUCATION FOCUS BY GRADE LEVEL

GRADES K-5

Knowledge of the World Around You Including the World of Work

Level I -

Occupational Education

Integrated and/or Highly Correlated Activity Approach Centered Around the Knowledge of Man's Practice

409 Occupations

1. Agriculture and Natural Resources
2. Business
3. Health
4. Industry/ Engineering/ Science
5. Human Services

GRADES 6-10

Continue Level I

Add Level II

Systematic Occupational Exploratory Experiences of All Types of Occupations

409 Occupations

1. Agriculture and Natural Resources
2. Business
3. Health
4. Industry/ Engineering/ Science
5. Human Services

GRADES 11-12

Continue Level I and II

Add Level III

A. Occupational Clusters Geared To Occupational Placement at the Entry Level

409 Occupations

1. Agriculture and Natural Resources
2. Business
3. Health
4. Industry/ Engineering/ Science
5. Human Services

B. Occupationally Oriented Programs Geared to the Needs of College-Bound Students

C. Develop Competence for Occupations in Existing and Projected Occupations

GRADES 13-14

Continue Level I, II and III

Add Level IV

A. Develop High-Level Competence in Skilled and Technical Fields

409 Occupations

1. Agriculture and Natural Resources
2. Business
3. Health
4. Industry/ Engineering/ Science
5. Human Services

B. Continuing Education Assist Workers to Reach Higher Levels of Competence

Appendix M

CONSULTANT'S REPORT ON "A PROJECT DESIGNED TO DEFINE THE ROLE OF INDUSTRIAL ARTS IN CAREER EDUCATION FOR THE STATE OF OKLAHOMA"

By
Rutherford E. Lockette
Professor of Education
University of Michigan

The following is the conduct of the workshop designed to implement Phase III of the proposal which was designed to accomplish the objectives presented below. They are:

1. To develop groups for four levels of Industrial Arts in Career Education.
2. To formulate methods of attaining those groups.
3. To develop a deep interest in the concepts of Career Education.
4. To promulgate the findings of the workshop.

Both Dr. Polk, project director, and the consultant, Rutherford E. Lockette, had given considerable attention to the proposal prior to a meeting which was held to finalize details of the project on May 29, 1972. It was agreed that the substantiative outline which is presented below was to be followed:

I. The Role of Education in the United States

II. The Role of any Special Field as a Function of Education

III. The Role of Industrial Arts as a Special Field in American Public Education

A. Industrial Arts in the Elementary School

B. Industrial Arts in the Lower Secondary School

C. Industrial Arts in the Upper Secondary School

D. The Professional Development of Industrial Arts Personnel

IV. Major Factors to be Considered in Curriculum Development in Industrial Arts

V. Major Factors to be Considered in Course Construction in Industrial Arts

VI. Major Factors to be Considered in the Selection and Utilization of Instructional Strategies in Industrial Arts

VII. Major Factors to be Considered in Curriculum Evaluation in Industrial Arts

VIII. Expanding the Involvement of Industrial Arts in Occupational Education

A line drawing indicating the procedures presented in the substantiative outline which was followed in the workshop is appended to this report.

I. The Role of Education in the United States

The role of any institution in any state is designed to perpetuate or transmit and improve upon the idealogy and philosophy of that state. In the United States the fundamental role of education is to perpetuate and improve upon the idealogy and philosophy of American democracy. Because this is true, the consultant (Lockette) began his initial presentation by presenting a concept of democracy and definition of education. This was presented from a prepared paper which is appended to this report. It was concluded that the role of education in the United States is to perpetuate and improve upon the idealogy and philosophy of American democracy. This was followed by a discussion of the objectives of each set of objectives from Policies for Education in American Democracy by the American Council on Education. Those sets of objectives are the objectives of self-realization, the objectives of human relationship, the objectives of economic efficiency, and the objectives of civic responsibility. A copy of these objectives is appended to this report.

II. The Role of any Special Field as a Function of Education

Any field justifies a role in the broad field of education as it meets the criteria presented below.

1. Specialized fields, such as English, history, industrial arts, plumbing, art, and all others, justify their inclusion in the curriculum to the extent that they contribute to the fulfillment of the general objectives of education in American democracy.
2. The greater the contribution made by a specialized field, the greater is its worth in the development of human resources.
3. All specialized fields should be required to show how the content and activities of each course contribute to the overall objectives of education in some balanced manner.

III. The Role of Industrial Arts as a Special Field in American Public Education

It was agreed by the director Dr. Polk and the consultant R. E. Lockette that the workshop participants would profit by using the role of Industrial Arts which has been established by the proposal. A Guide to Improving Instruction in Industrial Arts appealed to both individuals to be the most outstanding example of a guideline which should be used as a point of departure. Accordingly, the participants in the workshop and the Oklahoma consultants were asked to review the guide. They were asked to adopt the guideline and objectives, or to alter them in line with the needs of the State of Oklahoma. The objectives presented to the group are shown below:

Goals of Contemporary Industrial Arts Programs

Goal I Develop an Insight and Understanding of Industry and Its Place in Our Culture

Goal II Discover and Develop Talents, Aptitudes, Interests, and Potentialities of Individuals for the Technical Pursuits and Applied Sciences

Goal III Develop an understanding of industrial processes and the practical application of scientific principles

Goal IV Develop basic skills in the proper use of common industrial tools, machines, and processes

Goal V Develop problem-solving and creative abilities involving the materials, processes, and products of industry

Objectives of Industrial Arts in the Elementary School

1. To support, enrich, and vitalize the academic curriculum and make general educational experiences more meaningful to the students.

2. To develop cooperative attitudes and self-reliance through problem-solving situations.

3. To develop an understanding and appreciation of the dignity of honest work.

4. To learn how to modify materials to meet students' needs by using elementary tools and materials.

Objectives of Industrial Arts in the Junior High School

1. To provide all students with the opportunity to explore industry and the world of work.

2. To provide opportunities for attaining knowledge of industrial vocations and related avocational pursuits and hobbies.

3. To improve the competence level of the students in regard to the choosing, buying, and using the goods and services of the industry.

Objectives of Industrial Arts in the Comprehensive High School

1. To provide, in addition to the practical laboratory courses in undergraduate work, the professional education courses for initial and in-service training of industrial arts teachers.

2. To provide graduate level instruction for those who will be assuming leadership functions in the field of industrial education in the public schools, community colleges, technical institutes, and universities.

3. To serve as centers for research and dissemination of materials in the effective teaching and organization of subject materials in the field of industrial education.

4. To provide basic experience and understanding for individuals interested in related technologies, such as management, production, and technical sales.

Large group meetings were used to give general instruction on format and procedures which were common to each of four sub-groups. They were asked to develop objectives and recommendations for content recommended for instructional strategies, as well as evaluation procedures in their respective levels of the curriculum. The groups were housed in four separate rooms when the workshop was in small group sessions. An estimated 75 per cent of the time was spent in small group session.

Educational Strategies Designed to Improve Education in the School

One of the large group's sessions dealt with strategies designed to implement career education. The appendix which discusses "Processes of Education" illustrates the content of the discussion. An attempt was made to show the relationships as well as the importance of philosophy and definition, objectives, content, and methods of learning the instructional theory and learning activities. Assessment of outcomes, as well as physical facilities, instructional media, instructional personnel, curriculum materials, and organization systems, were included in the discussion. Instructional strategy was also discussed as is shown in the appendix labeled, "Instructional Strategy."

Recommended Strategy for Developing and Implementing Innovation in Education - Strategy Geared to Career Education

Idea for Improving Education - Career Education

Promote Career Education in Department - Seek Adjustment

Seek Agreement on the Idea from Administration - Make Colorful Presentation

Seek Support from Related Areas - Math, English, etc.

Establish School Wide Program Committee - All Curriculum Areas Must Be Represented

Establish Overall Advisory Committee - All Groups Must be Represented

Develop Formal Proposal

Apply P.E.R.T. (Program Evaluation Review Techniques) to Formal Proposal

Secure Formal Approval of all Appropriate Committees and Parties

Proceed to Implement Plan With or Without Added Funds

Career Education - Identify Grade Levels in which Major Thrust will Fall - Awareness, Exploration, Occupational Preparations, Professional Development

Organize Appropriate Sub Committees to Develop Curriculum Materials and to Attend other Appropriate Matters*

Sub Committees Meet in Workshop Session

Work of Sub-Committee Revised by Advisory Committees

Continue the Two Preceding Steps until Project is Completed

Field Test Curriculum - Use Advisory Committees

Continue to Revise with the Use of Advisory Committees on an Annual Basis

Reaction to the Workshop

I initially believe that the proposal, "A Project Designed to Define the Role of Industrial Arts in Career Education for the State of Oklahoma," was excellently conceived and serves to move the state of Oklahoma forward on the road to developing excellent career education programs. It considered the major aspects of career education and established the relationship of Industrial Arts to Career Education. My estimate is that the workshop participants have a reasonable understanding of career education and a reasonable understanding of what must be done if Industrial Arts is to make its maximum contribution to it. I do not know how more might have been accomplished in a simple week.

I am of the belief that this proposal should be expanded to involve the same individuals in a number of additional workshops which might be scheduled over the next two years to enable them to accomplish other developmental phases through which career education must move.

In this workshop, an attempt was made to make Industrial Arts teachers understand how Industrial Arts fits into Career Education. The next workshop should involve individuals from other fields in education with the view of establishing communications among Industrial Arts Education, other fields of vocational education, and fields of general education. Steps beyond that point should be altered at the next workshop.

Once again, my overall impression of the workshop is that it was excellently conducted. The staff is highly competent to continue this effort and the participants are not only interested, but extremely capable. A lot can be said about the cooperation among the instructors of career education in Oklahoma. They are not only masters of their fields, but work extremely cooperatively in their relationship with others.